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1. The chief responsibility of the Foundry Heat Economy Division (Zaklad Kutzicznej Gospodabki Ciepenej) at the Main Institute of Metallurgy (Glowny Instytut Metalurgy) in Gliwice was to assist the entire Polish foundry industry in any problems of heat economy. Pre-war foundry heat economy was wasteful with no direct supervision. After world war II, raising economy standards by research in raw materials, better training of personnel, improving working conditions, better equipment, and procurement of better fuels was stressed by the Polish government.

2. To help train new foundry personnel, the Main Institute accepted two technicians from the majority of Polish foundries to attend a course called, "Supervisors of Foundry Heat Economy" 25X1 which was given during the month of November 1950, and again in February 1951. This course was of four weeks' duration--six hours a day and six days a week.

About 30 technicians attended these courses. Upon completion of each course the men were given an examination and, if successfully passed, were accredited with a diploma. 25X1

3. The chief of the Foundry Heat Economy Division was Engr Witold Rosner, who also acted as director of the courses mentioned above. Rosner and Prof Ocheduszko, Scientific Consultant (Rada Naukowa) and Prof of Thermodynamics at the Institute, toured all of Poland and assisted the various foundries in heat economy and other foundry problems. Both Professors Rosner and Ocheduszko were 25X1

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considered a pole in thermodynamics, and were two of the few advisors to [redacted] industry in problems concerning heat measurement and heat balances. Professor Rosner invented an apparatus to estimate the heat value of gases on the basis of the expansion of metals. He also worked with a Dr (fnu) Jurkiewicz of the Main Institute of Coal (Glowny Instytut Weglowy) in combining coal and iron ore for a smelting process. This process saved time in comparison with former methods, in which coke must first be obtained from coal and then consolidated with the coke and ores for smelting. The two professors' new method was reported to the Ministry of Heavy Industry (Ministerstwo Przemysly Ciezkiego) in June 1951 as not yet perfected, but worthy of further perfection, and as such, in need of additional financing. In November 1951, however, no further approval action had been taken by the Ministry.

4. Engr Franciszek Byrtus, the Division's specialist in coke research, produced a better coke for smelting processes. Coal mined in the Silesian section of Poland was known to make a soft, poor type of coke. Byrtus, assigned to this problem, procured samples of various types of coal from all parts of Silesia, and by grinding and mixing these selections, finally found a combination which, when treated in coke ovens at temperatures between 1250° and 1300°, produced a good coke for smelting processes. Byrtus and Dr (fnu) Foerster, director of the coke factory in Swietochlowice worked closely together on coke research. Most of Byrtus's research was published in the technical magazines, "Labor of Main Institute of Metallurgy" (Prace Glownego Instituty Metalurgii), "Foundry" (Hutnik), and "Mine Review" (Przeglad Gorniczy) during 1949 and 1950.

5. Engr Zusanna Szklarska of the Institute specialized in the study of the influence of inorganic compounds on the physical and chemical properties of coke. She had studied chemistry at the Silesian Polytechnical University at Gliwice, receiving her doctor's degree there and becoming an assistant to the University's Professor Dr (fnu) Salcewicz (position unknown), who was Vice Minister of the Polish Coal Ministry (Vice Minister Gornictwa Ministerstwo Wegla).

6. Engr Emil Ryszka, the only specialist in rotameters in Poland, was also a member of the Institute's staff. He designed several types of rotameters which were as good as the English type, but much cheaper to produce. Engr Ryszka subdelegated all rotameter work to an engineer by the name of (fnu) Rychlik, a young, promising technical engineer about 26 years of age, and then concentrated on problems pertaining to open hearth furnaces, and the carbonization of the gas flame in open hearth furnaces. This research was conducted in the foundry (Huta Dzierzynskiego) located in Dombrowa Gornicza [50-20N-19-12E], ca 15 miles NW of Katowice. (All plans and equipment for this purpose were received from the USSR.) The problem was this: carbonizing the gas flame in open hearth furnaces increases the production of steel about 15 per cent; also, the heat transfer rate of a brilliant flame is naturally greater than that of a dark flame; but in order to maintain a brilliant flame, such elements as oil, tar, coal or coke, all rich with carbon, are added to the gas compounds. In the US and Western Germany oil was added to the gas, [redacted] In Poland from July 1951 on, various tests were made in the Kosciuszko Foundry in Chorzow of the method of adding oil to gas, and the results were satisfactory. The amount of oil necessary per one ton of steel was found to average 20 kg; but the great difficulty was that the amount of oil and tar in Poland was quite limited, and urgently needed by the Polish chemical industry, which forced the foundries to resort to either coal or coke as a fuel. Coke proved to be a very poor substitute, so coal was then tried as a carbonizing agent; but coal

too, was discovered to be a poor substitute, because in a short time the [illegible] of the open hearth furnaces became damaged or even destroyed from the ash of the coal or coke. This ash combined with the materials in the regenerators to form a slag and prevent the proper airing and working conditions of the regenerators.

7. Dr Laskowski and Dr Korol, of the Main Institute of Coal at Katowice, in September 1951, succeeded in cleaning coal of inorganic impurities and managed to get a coal with as little as 0.6 per cent ash. This coal proved cheaper than oil or tar, because only 15 kg were needed per ton of steel. The method was very simple [redacted] the 0.6 per cent coal was electrically ground at the foundry; the powder was then air-blown through piping, and mixed with gas just before being fed to the burners. This process shortened the melting time and increased production by 15 per cent. 25X1 25X1

8. [redacted] 25X1 25X1

9. MA Withod Krause, the remaining member of the Division, studied chemistry at the University of Poznan, and was employed by the Institute in May 1951. His chief duties were to gather all information and facts pertaining to purification of water of the foundries belonging to the Ministry of Heavy Industries. The water used in the foundries contained an abundance of salt which destroyed the steel boilers in a very short period of time, and it was on this problem which Krause was engaged.

10. [redacted] 25X1

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